

REMARKS/ARGUMENTS

Claim Rejections under 35 USC § 112

Claims 11-16 stand as being rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. More specifically, the Examiner asserted that the “the passing” was indefinite due to the recitation of the limitation “without substantial change in the degree of the dispersion of said reaction fluid” since it was unclear whether the change in the degree of the dispersion is applied through the entire catalyst bed or just in the connection path between the generating zone and the reactor. Applicant respectfully traverses the rejection.

Claim 11 recites, “passing the reaction fluid, without substantial change in the degree of the dispersion of said reaction fluid, through a reactor...” and does not recite “connection path.” (See FIGS. 1 and 2; Specification, page 4, line 17 – page 5, line 34; Specification, page 9, lines 20-25). Accordingly, the claim language itself is clear on its face and there is no failure to particularly point out and distinctly claim the subject matter the Applicant regards as the invention. Additionally, Applicant’s specification and drawings clearly differentiates between the reactor 1 and the feed line 7, which the Applicant believes the Examiner is referring to as “the connection path between the generating zone and the reactor.” Furthermore, while Applicant’s specification does describe both a constant degree of dispersion in 1.) the feed line to the reactor (See page 9, lines 21-25), and in 2.) passing the reaction fluid through the reactor (See Page 4, lines 22-26), claim 11, nonetheless, recites, “passing the reaction fluid...through a reactor.” Accordingly, claim 11 is clear on its face.

In view of the above, Applicant respectfully submits that claim 11 is not indefinite and that the rejection should be withdrawn.

Claim Rejections under 35 USC § 103

Claims 11-16 stand rejected under 35 USC § 103 as allegedly obvious in view of Arganbright (US 4,950,834). More specifically, the Examiner asserted that Arganbright disclosed “substantially the same” process as the Applicant, and “Arganbright does not disclose

that (1) the mixture of benzene and propylene does not substantially change in the degree of dispersion thru the reactor (Y sieve section) and (2) using a cooling fluid medium for delivering heat way from the reactor. However, it is expected that the dispersion would not change in the Y sieve section of the Arganbright process since the catalyst bed of the Arganbright reactor is made of the same material as the claimed reactor...It is expected that the heat of the reaction will be transfer from the wall of the reactor via the surrounding air. However, in the case that the reaction room is too hot, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Arganbright process by employing air conditioners to cool down the room to arrive at the applicants' claimed process to avoid the reaction room is too hot." Applicant respectfully traverses the rejection.

When applying 35 U.S.C. § 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986) (Emphasis added).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Indeed, "to support the conclusion that the claimed invention is directed to obvious subject matter, either the

references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. *See In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), *cert. denied*, Appeal No. 2002-1187 389 U.S. 1057 (1968). Finally, the prior art must also provide a reasonable expectation of success. *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1354 (Fed. Cir. 2003) (“A showing of obviousness requires a motivation or suggestion to combine or modify prior art references, coupled with a reasonable expectation of success . . .”); *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988). That it would have been obvious to try is not sufficient. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1380 (Fed. Cir. 1986).

In view of the above principles, Applicant respectfully submits that the Examiner has not set forth a *prima facie* case of obviousness.

First, the Examiner has not considered the instant claimed invention or Arganbright as a whole. Claim 11 describes, among other things, a process for carrying out a reaction under isothermal conditions involving a gas phase, a liquid phase and a solid phase wherein a reaction fluid is generated by dispersing the gas phase in the liquid phase and passing the generated reaction fluid, without substantial change in the degree of the dispersion, through a reactor whose space is equipped with woven or knitted metal fabrics coated with catalyst. Heat through the reactor is transferred to a cooling medium on the reactor wall surface away from the reactor space. As described in the specification, dispersing of the gas phase in the liquid phase can be performed by a dispersing element, such as a liquid jet gas compressor, e.g., jet pumps for conveying and compressing gasses, and feeding of the generated reactor fluid into the reactor can be accomplished by a feed line that is sufficiently short such that the degree of dispersion of the reaction fluid does not change during its passage to the reactor. Additionally, the reactor is designed for maintaining a high but uniform shearing stress on the reaction fluid, which provides

for uniform mixing of the reaction fluid and a constant degree of dispersion of the reaction fluid as it passes through the reactor. Finally, heat transfer is provided by a heat exchanger, for example, as described in the specification as comprising a plate type heat exchanger or a spiral type heat exchanger, which as illustrated in FIG. 4 utilizes a counter current flow, albeit co-current arrangements are also disclosed. While Applicant acknowledges that limitations contained in the specification are not to be read into the claims, claims are also not to be read in a vacuum but are to be interpreted in light of the specification and given their broadest reasonable interpretation consistent with the specification.

In complete contrast, Arganbright describes dual bed system wherein a feed through the reactor is accomplished by separate feed streams, namely, a first feed stream containing propylene, which is fed at a point below a bed of Omega molecular sieve catalyst prepared as distillation structure and a second feed stream of benzene at a point above the bed of Omega molecular sieve catalyst. Indeed, Col. 3, lines 1-5 of Arganbright specifically indicates that the two components are added separately. Despite these clear differences, the Examiner asserts, "Arganbright discloses that the benzene and others flow to the bottom of the Omega sieve section to the Y sieve section...the Examiner has recognized that propylene stream 1 must be dispersed into this flowing down benzene stream before the mixture of benzene and propylene." However, the Examiner has considered the cited passage in a vacuum and has failed to consider the teachings of the reference as a whole. Indeed, the complete passage recited by Arganbright does not describe an active process for generating a reaction fluid by dispersing the gas phase in the liquid phase and passing the generated reaction fluid, without substantial change in the degree of the dispersion, through a reactor, but rather describes products of a reaction. Arganbright specifically states, "[s]ince complete separation of the reaction products and benzene does not occur in Omega bed 12, cumene, small amounts of propylene, dimerized propylene...and benzene flow down the column into the Y-bed where any propylene and dimerized propylene may react with the benzene to produce additional cumene." (Col. 7, lines 24-34). Additionally, the Examiner asserts that Arganbright discloses a "reactor having a wall contacted with the surrounding air...[such that]...it is expected that the heat of reaction will be

transfer from the wall of the reactor to the surrounding air. However, in the case that the reaction room is too hot, it would have been obvious to one having ordinary skill in the art...to employ air conditioners to cool down the room to arrive at the applicant's claimed process." However, Arganbright does not disclose cooling systems, e.g., countercurrent type heat exchangers, but rather, discloses, "[t]he temperature of the reactor is determined by boiling point of the liquid mixture...To change the temperature the pressure is changed. Temperature in the reaction zone is thus controlled by pressure; by increasing the pressure, the temperature in the system is increased, and vice versa." Accordingly, not only has the Examiner failed to consider the teachings of Arganbright as a whole (Arganbright teaches pressure not an air conditioned room), but the Examiner's proposed modification is wholly contrary to the teachings of Arganbright. Indeed, Arganbright specifically teaches controlling temperature by virtue of modifying pressure. Furthermore, there is simply no reasonable expectation that the combination/modification propounded by the Examiner would be successful; that is, the Examiner's contention that an air conditioned room would be sufficient to control reactor temperature, or be sufficient to cool the instant claimed reactor is tenuous at best, wholly speculative and completely unreasonable absent objective evidence illustrating the same.

Second, upon considering Arganbright as a whole, it is clear that Arganbright does not teach or suggest each and every element of claim 11 as required to support a *prima facie* case of obviousness. That is, Arganbright does not disclose a process for generating a reaction fluid by dispersing the gas phase in the liquid phase and passing the generated reaction fluid, without substantial change in the degree of the dispersion, through a reactor whose space is equipped with woven or knitted metal fabrics coated with catalyst. Similarly, Arganbright does not disclose the step of transferring the heat through the reactor to a cooling fluid medium. Additionally, as Applicant asserted in its reply filed August 12, 2004, contrary to the Examiner's assertion, Arganbright does not disclose similar woven or knitted fabrics used as catalysts, but rather discloses screen wire that functions as a spacing components- not catalysts.

Third, because the Examiner has not considered Arganbright as a whole, it is clear that the Examiner has used hindsight reconstruction to pick and choose among elements found in

Arganbright and/or that knowledge generally available to one having ordinary skill in the art in an effort to render the claimed invention obvious. Indeed, Arganbright specifically teaches controlling temperature by adjusting pressure and does not disclose, teach or suggest the use of an air conditioned room as suggested by the Examiner. Likewise, Arganbright does not disclose, teach or suggest dispersing a gas phase in a liquid phase and passing the generated reaction fluid, without substantial change in the degree of the dispersion, through a reactor. Accordingly, the Examiner has done no more than use the Applicants disclosure as a template to select individual elements from the prior art to render the instant claims obvious. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. *See, e.g., Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985).

Fourth, absent the Applicant's disclosure, there is simply no teaching, suggestion or motivation contained in Arganbright or that knowledge generally available to one having ordinary skill in the art to make the combination/modification propounded by the Examiner and/or the Examiner's rationale to combine/modify the teachings of the art emanates not from objective sources, but from subjective belief and unknown authority. Indeed, Arganbright specifically describes using pressure to control temperature, which effectively teaches away from the combination/modification propounded by the Examiner. Where the prior art "teaches away" from the claimed invention rather than motivating a person of ordinary skill in the art to do what the patentee has done, the claimed invention is nonobvious. *In re Hedges*, 783 F.2d 1038, 1041 (Fed. Cir. 1986); *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1552-53 (Fed. Cir. 1983).

Fifth, the Examiner has not set forth a convincing line of reasoning as to why an artisan would have found the instant claimed invention obvious and/or there is simply no reasonable expectation of success. As previously noted, absent objective evidence, the Examiner's contention that an air conditioned room would be considered by one having skill in the art and/or be successful is wholly speculative, not reasonable and unconvincing.

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In view of the above, Applicants respectfully submit that the Examiner has failed to set forth a *prima facie* case of obviousness to reject claim 11 and those claims depending therefrom. Consequently, the rejection should be reversed.

Conclusion

Applicants respectfully submit that the present application is in condition for allowance, which action is courteously requested. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 14-1437. Please credit any excess fees to such deposit account.

Respectfully submitted,



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